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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/612,569

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EXAMINER

HOLLOWAY III, EDWIN C

ART UNIT

PAPER NUMBER

2612

MAIL DATE

DELIVERY MODE

07/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/612,569

Applicant(s)

ANDERSON, PETER TRANEUS

Examiner

Edwin C. Holloway, III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) ✓
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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EXAMINER'S RESPONSE

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5-9-07 has been entered. The examiner has considered the new presentation of claims and applicant's arguments in view of the disclosure and the present state of the prior art. And it is the examiner's opinion that the claims are unpatentable for the reasons set forth in this Office action:

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the tracking system in at least independent claims 1, 13, 28 must be shown or the feature(s) canceled from the claim(s). Further, a flow chart of method steps in at least independent claims 8, 15, 21, and 22 should be shown in the drawings. Also, the controller of claims 6, 7 and 34 must be shown or canceled from the claims. No new matter should be entered.

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Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-8 and 10-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Independent claims 1, 8, 13, 15, 21, 22 and 28 have been amended to add the limitation of "determining position and orientation of said transponder in relation to a reference coordinate system," but an enabling disclosure of this limitation in the detailed description is not present in the specification as originally filed. Page 2, par. 06 of the specification refers to reference to coordinate system, but lacks an enabling disclosure of a tracking system or method for determining position and orientation of a transponder in relation to a reference coordinate system. Page 2, par. 07 of the specification refers to determining position, but lacks an enabling disclosure of a tracking system determining position and orientation of a transponder in relation to a reference coordinate system. Page 6, par. 25 of the specification says

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that characteristics of the response signal may be used to calculate the position, orientation, and gain of the transponder, but lacks an enabling disclosure of a tracking system determining position and orientation of a transponder in relation to a reference coordinate system. The specification lacks details of a system or method for determining position and orientation from the transponder signal in relation to a reference coordinate system.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-7, 13-14 and 28-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-7, 13-14 and 28-38 are directed to a transponder, but include significant tracking system limitations. It is unclear if the tracking system is only an intended use for the transponders or if the claims are directed to the combination of a transponder and tracking system?

Claim Rejections - 35 USC § 102 & 103

7. The text of those sections of Title 35, U.S. Code not

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included in this action can be found in a prior Office action.

8. Claims 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Dumoulin'066 (US005443066A).

Regarding claims 15-16, Dumoulin'066 discloses RF tracking system where an RF transmitter or transponder 200 placed in a patients body is tracked to determine position and orientation in relation to patient anatomy by determining a location that is superimposed on a medical image in col. 3 lines 55-67. This is provided by overlaying coordinate system (x, y, z, theta, phi) in incorporated applications 07/753563 07/753565 corresponding to US Patents 5377678 and 5211165. The transmitter 200 includes rectifying diodes 230 to rectify a received first signal (activation signal) at a first radiofrequency and an oscillator to convert the rectified signal to a second radiofrequency different from the first radiofrequency. The second radiofrequency is received by coils 160 of the tracking system to determine position and orientation of RF transmitter 200. See col. 4 lines 19-53. This allows tracking of an invasive device with RF signals.

9. Claims 1-3, 8-10, 13-14, 17-29, 32, 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin'066 (US005443066A) as applied above in combination with Jones (US 4160971).

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Jones discloses an analogous art transponder for medical applications with single diode 12 as a nonlinear device and one or more parallel resonant circuits to convert an interrogation frequency into one or more response frequencies that are used to identify the transponder. Capacitance is varied by use of a varactor diode and/or capacitor 11 varying with a measured quantity. See the abstract, col. 1 and col. 7 lines 25-44.

Regarding claims 17-20, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in Dumoulin'066 the diode circuit of Jones as a simple passive device to convert the activation frequency to a second frequency for tracking the transponder. Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in Jones the determining of position and orientation in relation to patient anatomy by determining a location that is superimposed on a medical image in Dumoulin'066 to interactively track the transponder through the subject without requiring other medical diagnostic images. Regarding claims 19-20, varying capacitance/frequency would have been obvious in view of Jones disclosing this to communicate a measured value. Regarding claims 21-27, transmitting first and second frequencies would have been obvious because the at least part of f1 would be

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reflected by the resonant circuit of Jones. Regarding claims 28-32, Jones includes a switch 12 in parallel with coil 10. Regarding claims 1-3 and 35-38, Jones includes a diode 12 in parallel with coil 10. Regarding claims 13-14 Jones includes a diode 12 in parallel with coil 10 and a core would have been obvious in view of the open center of Doumoulin'066. Regarding claims 8-10 and 39-40, Jones includes coil transmit/receive and rectifier diode. Note that Jones includes multiple parallel resonant circuits providing capacitors in parallel with the transmission coil.

10. Claims 1-3, 8-10, 13-14, 17-20, 22-29, 32, 35-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin'066 (US005443066A) as applied above in combination with Arndt (US006097189A).

Arndt discloses an analogous art transponder with nonlinear load such as a diode to provide harmonic response to avoid position tracking inaccuracies and false detection in col. 2. In other words, the transponder receives a signal at a first frequency that is converted or varied by a passive non linear load (diode) to provide a response signal at a second frequency. Position is determine relative to an X-Y-Z coordinate system in cols. 6 and 8. The transponder may includes resonant circuit including coil and capacitor in parallel with the diode to tune

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the frequency. Medical use is at least suggested by the transponder in hand in fig. 7.

Regarding claims 17-20, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in Dumoulin'066 the diode circuit of Arndt as a simple passive device to convert the activation frequency to a second frequency for tracking the transponder. Alternatively, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in Arndt the determining of position and orientation in relation to patient anatomy by determining a location that is superimposed on a medical image in Dumoulin'066 to interactively track the transponder through the subject without requiring other medical diagnostic images. Regarding claims 19-20, varying capacitance/frequency would have been obvious in view of Arndt disclosing this the diode varying such. Regarding claims 22-27, transmitting first and second frequencies would have been obvious because the at least part of f_1 would be reflected by the resonant circuit of Arndt. Regarding claims 28-32, Arndt includes a switch 202 in parallel with coil. Regarding claims 1-3 and 35-38, Arndt includes a diode 202 in parallel with coil. Regarding claims 13-14 Arndt includes a diode 202 in parallel with coil and a core would have been obvious in view of the open

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center of Doumoulin'066. Regarding claims 8-10 and 39-40, Arndt includes coil transmit/receive and rectifier diode. Note that Arndt includes parallel resonant circuits providing a capacitor in parallel with the transmission coil.

11. Claims 4-7, 11-12, 21-27, 31 and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin'066 (US005443066A) in combination with Jones (US 4160971) or Arndt (US006097189A) as applied above and further in view of Kip (US 4196418).

Kip discloses a passive transponder with a switch in series with a non-linear element such as a diode or capacitor. The switch is a transistor controlled by a logic circuitry to be periodically switched in a coded manner to provide an Identification code in an easily detectable manner. First, second and third frequencies may be provided. See fig. 5, col. 2 line 58 - col. 3 line 6 and col. 4 lines 31-60.

Regarding claims 4-7, 11-12 and 33-34, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in the combination applied above a controller controlling a switch in series with a diode or capacitor as disclosed in Kip so that the transponder is easily detectable. Regarding claim 31, transistor switch would have been obvious in view of Kip to provide easily detectable

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signals. Regarding claims 21-27, first and second frequencies would have been obvious in view of Kip to provide easily detectable encoded data for identifying the transponder.

12. Claims 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dumoulin'066 (US005443066A) in combination with Jones (US 4160971) or Arndt (US006097189A) as applied above and further in view of Murdoch '583 (US 5153583).

Murdoch '583 discloses a transponder with a synchronous rectifier in cols. 11 and 14 to provide simple and readily integrated rectification. A transistor for modulation switching in the integrated circuit is provided in fig. 4.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included in the combination applied above the synchronous rectifier and/or the transistor of Murdoch '583 to allow integrated circuit rectification/switching.

Response to Arguments

13. Applicant's arguments filed 5-9-07 have been fully considered but they are not persuasive and or moot in view of new grounds of rejection.

The argument that the claims are enabled by pars. 6-7 and 25 is not persuasive because the specification lacks any particular transponder tracking system or method details to

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provide the claimed limitation. No particular tracking system structure is shown in the drawings or described in the text that would enable making or using the claimed invention.

The arguments regarding the prior art rejections are moot in view of the new grounds of rejection.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Abels (US 4114601) and Blair (US006026818A) disclose medical transponders with a diode.

CONTACT INFORMATION

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact an Electronic Business Center (EBC) representatives at 571-272-4100 or toll free at 1-866-217-9197 between the hours of 6 a.m. and midnight Monday through Friday EST, or by e-mail at ebc@uspto.gov. The Patent EBC is a complete customer service center that supports all Patent e-business products and service applications. Additional information is available on the Patent EBC Web site at <http://www.uspto.gov/ebc/index.html>.

Any inquiry of a general nature should be directed to the Technology Center 2600 receptionist at (571) 272-2600. Facsimile submissions may be sent via central fax number 571-273-8300 to customer service for entry by technical support staff. Questions related to the operation of the facsimile system should be directed to the Electronic Business Center.


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Customer Service Window (now located at the Randolph Building, 401 Dulany Street, Alexandria, VA 22314), and facsimile transmissions must be sent to the Central FAX number, unless an exception applies. For example, if the examiner has rejected claims in a regular U.S. patent application, and the reply to the examiner's Office action is desired to be transmitted by facsimile rather than mailed, the reply must be sent to the Central FAX Number. Inquiries concerning only hours and location of the Customer Window may be directed to OIPE Customer Service at (571) 272-4000

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edwin C. Holloway, III whose telephone number is (571) 272-3058. The examiner can normally be reached on M-F (8:30-5:00). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Zimmerman can be reached on (571) 272-3059.

EH
7/17/07


EDWIN C. HOLLOWAY, III
PRIMARY EXAMINER
ART UNIT 2612